SPECIFICATIONS

FOR

GRADING AND LANDSCAPING

CITY OF EDINA, MINNESOTA

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Revised January 2015

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SPECIFICATIONS

FOR

GRADING AND LANDSCAPING

CITY OF EDINA, MINNESOTA

Revised January 2015

1.0 LOCATION:

The grading and landscaping to be constructed and installed under this contract is located in the City of Edina, Hennepin County, Minnesota as shown on the plans and drawings.

2.0 DESCRIPTION

This work shall consist of the excavation, backfilling, and restoration of existing surface improvements for the purposes of installing new and/or relocating or adjusting existing underground utilities.

Use of the term "Plans, Specifications and Special Provisions" within this specification shall be construed to mean those documents which compliment, modify, or clarify these specifications and are accepted as an enforceable component of the Contract or Contract Documents. All references to MnDOT Specifications shall mean the latest published edition of the Minnesota Department of Transportation Standard Specifications for Construction, as modified by any MnDOT Supplemental Specification edition published prior to the date of advertisement for bids. All reference to other Specifications of AASHTO, ASTM, ANSI, AWWA, etc. shall mean the latest published edition available on the date of advertisement for bids.

3.0 MATERIALS

3.1 Granular Materials

Granular materials furnished for foundation, bedding, encasement, backfill, or other purposes as may be specified shall consist of any natural or synthetic mineral aggregate such as sand, gravel, crushed rock, crushed stone, or slag, that shall be so graded as to meet the gradation requirements specified herein for each particular use by the material manufacturer or as indicated in the Plans, Specifications, or Special Provisions.

3.2 Granular Material Gradation Classification

Granular materials furnished for use in Foundation, Bedding, Encasement, or Backfill construction shall conform to the following requirements:

Foundation materials shall have 100 percent by weight passing the 1-1/2 inch sieve and a maximum of 10 percent by weight passing the No. 4 sieve.

Backfill materials shall consist of existing trench materials, except as otherwise specified in this specification or in the Special Provisions.

Bedding and encasement materials for flexible pipe, where improved pipe foundation is not required, shall meet the requirements of MnDOT Specification 3149.2B.1, Granular Borrow, except that 100 percent by weight shall pass the one-inch sieve.

A gradation report from an approved Independent Testing laboratory of the proposed granular materials shall be furnished to the Engineer before any of the granular materials are delivered to the project.

3.3 Granular Material Use Designation

Granular materials provided for Foundation, Bedding, Encasement, or Backfill use as required by the Plans, Specifications, and Special Provisions, either as part of the pipe item work unit or as a separate contract item, shall be classified as to use in accordance with the following:

Material Use Designation Zone Designation

Granular Foundation --- Placed below the bottom of pipe grade as replacement for unsuitable or unstable soils, to achieve better foundation support.

Granular Bedding --- Placed below the pipe midpoint, prior to pipe installation, to facilitate proper shaping and to achieve uniform pipe support.

Granular Encasement --- Placed below an elevation one foot above the top of pipe, after pipe installation, for protection of the pipe and to assure proper filling of voids or thorough consolidation of backfill.

Granular Backfill --- Placed below the surface base course, if any, as the second stage of backfill, to minimize trench settlement and provide support for surface improvements.

In each case above, unless otherwise indicated, the lower limits of any particular zone shall be the top surface of the next lower course as constructed. The upper limits of each zone are established to define variable needs for material gradation and compaction or void content, taking into consideration the

sequence of construction and other conditions. The material use and zone designations described above shall only serve to fulfill the objectives and shall not be construed to restrict the use of any particular material in other zones where the gradation requirements are met.

3.4 3" Minus Stabilization Aggregate

3-inch minus aggregate material shall meet the gradation as shown in the table below. The mater shall consist of crushed limestone aggregate or recycled concrete but not bituminous asphalt.

Sieve	Percent Passing (%)
3 inch	100
2 inch	90-60
1 inch	80-45
3/4 inch	55-30
#200	3-12

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3.5 Piling

Piling shall be constructed in accordance with the provisions of MnDOT Specification 2452 and special plan details relating to piling.

3.6 Insulation

Main Insulation shall be extruded rigid board material having a thermal conductivity of 0.23 BTU/hour/square foot/degree Fahrenheit/per inch thickness, maximum, at 40âF mean, a comprehensive strength of 35 psi minimum, and water absorption of 0.25 percent by volume minimum. Unless otherwise specified in the Plans, specifications, or Special Provisions, board dimensions shall measure 8 feet long, 2 or 4 feet wide, and 1, 1-1/2, 2, or 3 inches thick.

3.7 Geotextile Fabric

Geotextile fabric shall meet the requirements of MnDOT Specification 3733 and be used as required by the Plans, Specifications, and Special Provisions.

4.0 (2211) AGGREGATE BASE:

The provisions of MnDOT 2211 are supplemented and/or modified with the following:

Aggregate base material shall be Class 5, 100% crushed quarry limestone, or recycled aggregate base that meets the Class 5 specification indicated in MnDOT Table 3138-4 and the Plan, or as otherwise approved by the Engineer.

Add the following at the end of Section 2211.3C, Spreading and Compacting:

In conjunction with the construction, blade-mixing the material shall be required as necessary to produce a substantially uniform gradation and moisture content.

The method of compaction for Aggregate Base, shall be the Quality Compaction Method.

The Contractor shall produce a reclaimed aggregate base by pulverizing the existing bituminous pavement utilizing machine (cold) process to provide a blended aggregate mixture of existing bituminous and aggregate and/or approved granular subgrade material. The pulverizing operation shall produce an aggregate base Class 5 material meeting the provisions of MnDOT Table 3138-4. A Class 5 specifications with maximum bitumen content of 3.5 percent by mass (weight) shall be allowed per Table 3138-2.The pulverizing operation shall be performed to the thickness through the entire depth of bituminous and gravel base. The Contractor will need to make judgment on what that depth should be as field conditions may vary from soil boring reports. The machine speed shall be controlled to produce the required aggregate blend. Excessive oversized particles shall be removed by the Contractor. The line and grade shall be controlled to minimize incorporating undesirable sub grade materials into the reclaim aggregate base. The reclaimed material shall be compacted to provide a temporary driving surface.

"Full Depth Reclamation (various depths)," per square yard (S.Y.) shall include all labor and equipment to pulverize together the existing bituminous and gravel base in a single operation in place. When reclaiming operations are not feasible as determined by the Engineer due to a lack of existing gravel base or other suitable sub grade material, the Contractor shall suspend reclaiming operations and remove and salvage the existing pavement by milling. Whichever method is used, the work shall be measured on the square yard basis and paid for at the bid unit price for reclaimed aggregate base production. All associated work items shall be considered incidental. Contractor shall provide for periodic gradation testing of reclaimed aggregate base material as directed by the Engineer at the sole expense of the Contractor. Removal or reclaiming of bituminous curbing if present, shall be considered incidental to this item

"Reclaim Aggregate Base Class 5 Salvaged and Placed (CV)" per cubic yard (C.Y.) shall include all labor and equipment for excavating, handling, transporting, stockpiling, placing, shaping, necessary compacting operations, and aggregate base placement. All work shall be considered a single operation and incidental.

Excess reclaimed aggregate base not incorporated with the project as indicated in other sections shall become the property of the Contractor and be disposed of off site. All excess reclaim material shall be used before importing Class 5 material to the project.

Aggregate base, Class 5, required to be imported to the project shall be recycled aggregate base that meets the Class 5 specification indicated in MnDOT Table 3138-4, or as approved by the Engineer.

Priorities for the use of reclaimed aggregate material shall be determined in the field by the engineer. Typical priorities include:

1. Maintenance of roadway during the project
2. Sewer and watermain pipe bedding
3. Trench backfill
4. Subgrade correction
5. Roadway aggregate base
6. Driveway aggregate base

Reclaimed aggregate material shall only be used for driveway aggregate base if it has been strictly verified to meet the Class 5 specification indicated in MnDOT Table 3138-4 gradation.

5.0 EXCAVATION AND EMBANKMENT

The provisions of MnDOT 2105 are supplemented and/or modified with the following:

All excavation shall be classified as "Common Excavation" unless otherwise stated in the bid proposal.

5.1 2105.3I Disposition of Excavated Material

Topsoil shall be stripped, stockpiled and used as slope dressing to the minimum depths as shown on the plans and as directed by the Engineer.

The Contractor shall dispose of all excess excavated material at the disposal areas as designated on the plans. The disposal areas shall be kept leveled and suitable for dumping by the Contractor. If no disposal area is indicated on the plans, the excavated material shall become the property of the Contractor and removed from the project limits. Any stockpiling or re-handling of these materials shall be considered incidental to the Contract with no direct compensation therefore.

Excess excavation shall not be deposited on private property without the permission of the Engineer and until a Permission to Fill form has been executed by the property owner. The Contractor shall not be expected to finish grade material dumped on private property as part of this Contract.

5.2 2105.4 Method of Measurement

Common excavation shall be paid for by cross section measure. This item shall include topsoil stripping, as well as excavation required for roadway and walk construction. If designated (P) it shall be paid at plan quantity. Excavation designated (LV) shall be paid for by vehicle measure loose volume. All other

excavation shall be assumed excavated volume (EV) based on the cross section measure.

5.3 2105.4A Excavation Material

No payment shall be made for embankment construction behind the curb. Only the excavated material that is cut to line and grade shall be considered for payment. For payment by loose volume (LV) measure, each truck shall be measured by the Engineer and no payment shall be made if the Engineer does not receive a load count each day. All embankments shall be completed before any excess suitable material is disposed of.

All sub-cuts shall be backfilled as indicated on the plans. The backfill shall be placed in accordance with the "Quality Compaction" as specified in MnDOT 2211.

Excavation shall be paid for at the bid price per cubic yard (cross section measure) for sub grade excavation.

All necessary excavation required for the placement of a uniform depth of slope dressing and sod shall be paid for at the unit price per cubic yard of excavation, which includes bank sloping.

During construction, all excavations shall be maintained in such a condition that they will be well drained at all times. Temporary ditches or gutters shall be constructed when necessary to maintain drainage and avoid damage to the roadway. No excavated materials shall be placed or stockpiled in such a manner as to restrict free surface drainage of the sub grade or base courses.

6.0 TEST ROLLING

The provisions of MnDOT 2111 are supplemented and/or modified with the following:

Prior to the placement of any geotextile fabric, sub-base material, or aggregate base material, the Engineer will require a proof roll of the existing sub-grade. Proof rolling shall consist of driving a fully loaded dump truck, capable of delivering a minimum 9-ton axle load, over the existing in place sub-grade. This procedure shall be observed by the Project Engineer. The sub-grade shall be considered unstable if any deflection or rutting exceeds set limits defined within the provisions of MnDOT 2111.

All unstable areas shall be corrected and test rolled until the sub-grade meets the requirements or as directed by the Engineer. If there is any measurable precipitation between the original test roll and before any geotextile fabric or aggregate base is placed, if requested by the Engineer, the contractor will be required to re-test roll the sub-grade and make any corrections needed prior to placement of geotextile fabric or

aggregate base. All test rolling is considered incidental and no direct compensation shall be made.

Test rolling will be performed no more than 24 hours prior to pavement being placed. If within that time the project receives any measurable precipitation, the contractor will need to conduct another test roll at no extra cost to the Owner, if requested by the Project Engineer. Any additional corrections will need to be corrected and test rolled prior to bituminous being placed.

7.0 NOTIFICATION TO PROPERTY OWNER

The Contractor shall provide 24 hour notice to the property owner before any driveway is blocked and give them sufficient time to move their vehicles. No driveway shall be blocked longer than necessary for construction and only as approved by Engineer.

Access to existing businesses shall be maintained at all times. When construction is directly impacting business driveways and entrances, work shall be done continuously and as promptly as possible to return the driveway entrance to a finished surface. The contractor shall exercise care to minimize impacts to business parking facilities.

8.0 PROTECTION OF UTILITIES

The Contractor is required to protect all Utilities per the General Conditions. Special care shall be taken in crossing of underground gas, electric and telephone conduits.

The Contractor shall cooperate with the private utility company concerned in protecting and supporting conduits for uninterrupted service. The utility company shall be notified immediately of any damage to conduits.

In the event it is necessary to cut any gas line to perform the necessary grading, such cutting shall be performed by the utility company, at no expense to the Contractor. Any accidental breakage of gas lines shall be the responsibility of the Contractor; such breakage shall be repaired by the utility company. The Contractor shall contact the utility company prior to excavating in any street.

9.0 PROTECTION OF EXISTING DRIVEWAYS, CURBS AND SIDEWALK

Any concrete, blacktop, crushed rock, or other type of driveway material carelessly disturbed by the Contractor during construction shall be replaced or rebuilt to a condition at least equal to its condition at time of removal. There shall be no compensation allowed for this item.

Existing concrete curb or sidewalk not scheduled for removal and replacement that is carelessly damaged by the Contractor during any construction activities will be replaced at no cost to the City.

10.0 PROTECTION OF IRRIGATION AND PET CONTAINMENT SYSTEMS:

Care must be taken to ensure that existing irrigation and underground pet containment systems in place at start of construction are protected from unnecessary damage. The Contractor shall provide irrigation and pet containment system repairs to systems that were damaged during normal construction operations.

This work includes removing existing pipe, irrigation heads, valves, tees, valve boxes, pet containment wiring, conduit, blowing out the system prior to winter freeze up, verifying the system functions the following spring if repairs occurred late in the construction season, etc. related to these systems and reinstalling salvaged items or installing new items such that the system is returned to its pre-construction condition. All wiring and piping shall be made water tight with industry approved materials. Irrigation heads shall match the style of the existing systems unless otherwise approved by the Engineer.

The Contractor shall verify all irrigation head and line locations prior to construction operations so as to protect the portions of the systems that will not be affected by construction. Unnecessary damage caused to the existing system inside or outside the construction limits shall be repaired at the Contractor's expense.

Damage occurring to systems as approved by the Engineer during normal construction activities shall be paid at the contract unit price for irrigation system repair and pet containment system repair and shall include all labor, equipment, and materials associated with these repairs.

11.0 CLEANING OF CATCH BASINS, MANHOLES AND GATE VALVES:

The Contractor shall prevent dirt, concrete, or any other material from entering existing manholes, catch basins, or water valve boxes. All removal of such material from the sewers or repairs caused by such negligence shall be made at the expense of the Contractor.

12.0 DUST CONTROL

The Contractor shall be required to adequately control dust on the streets at all times. When directed by the Engineer, the Contractor shall provide one tank truck, adequate size, with spray bar or other suitable equipment for sprinkling streets, which shall be available at all times for dust control. It shall be the specific requirement that dust control measures are strictly adhered to and a regular watering schedule be implemented when directed by the Engineer (e.g. once in the morning, once mid-day and once late afternoon). The Owner shall furnish the water free of cost, but reserves the right to indicate the source of supply. The Contractor shall acquire one water meter per project from the Owner for use by the Contractor and all sub-contractors at a cost of $1200. A pay item shall be designated for this item.

Saw cut operations shall utilize wet sawing techniques or approved equal to reduce the amount of dust created by sawing operations of both concrete and bituminous pavements.

The Contractor shall be required to respond to any verbal notice from the Engineer regarding dust control and respond appropriately within one (1) hour from the time of notification. If the Contractor fails to take appropriate action as indicated, the Engineer shall have corrections made and assess $500.00 damage plus costs incurred in correcting the violation. Damages shall be assessed for each violation or repeat violation and appropriate deductions shall be made to the final Contract payment.

13.0 TURF ESTABLISHMENT

Unless specifically indicated in the Contract, the seed provided for this project and the procedure for seeding shall conform to the requirements of MnDOT Specifications 2575, 3876, 3877 and 3878 and as modified herein:

13.1 Description

Restoration shall be done in locations designated on the plans or at other locations as directed by the Engineer. The work shall include the replacement of all turf which has been disturbed or uprooted by other phases of the Contract.

Seed and topsoil shall be leveled and smoothly blended into the existing turf. Where topsoil abuts existing turf, the edge shall be clean cut to a depth of 6 inches.

Hydro-seeding application shall be completed from two different directions to ensure even application and reduce shadow areas. The Contractor shall protect existing driveways, curb and gutter, landscaping, plantings, turf, walls, fire hydrants, and all other in-place items from hydro-seed overspray. Any overspray shall be removed by the Contractor within 24 hours of receiving notice from the Engineer. A penalty of $500.00 per day shall be charged for failure to remove hydro-seeding overspray within 24 hours of receiving notice.

13.2 Topsoil

Topsoil shall be pulverized and free of heavy clay, peat, stones, plants, roots, sticks and other foreign materials. The topsoil borrow material shall be a light and friable loam, be black in color appearance and meet the requirements in accordance with MnDOT Specification 3877.2.B. but shall have a minimum 6% organic content. Prior to the application of seed, topsoil shall be tilled by disking, rototilling, or other approved method of tillage to a minimum average depth of 3.0 inches, and shall be leveled and raked to prepare a weed-free, smooth, and even seedbed with a loose and open surface. Stones and other debris over 0.5 inches in diameter shall be removed from the soil surface. A uniform grade shall be established so that no depressions or elevations are present, and so that the safe and effective operation of mowing equipment shall not be hindered after the turf grass is established.

Contractor shall furnish test results and samples prior to delivery of the material to the project.

Prior to placing any topsoil the slopes shall be cut uniformly such that the finished seeded slope shall conform to the designated section. Topsoil shall be placed to a minimum depth of 6” for seeding operations. The topsoil shall be raked and all lumps and irregularities removed prior to placing the seed. Operations to remove lumps or irregularities shall be incidental to topsoil placement. The topsoil shall not be too loose whereby footprints greater than 1.0 inch are observed, nor shall it be too dense whereby only footprints less than one-quarter of an inch are observed.

Care shall be taken to insure that the topsoil does not contaminate the subgrade or base of the roadway. Grading stakes, stones, trash, root masses, and other debris which may hinder the distribution of fertilizer, compost, seed, or seed mulch during seeding operations shall be removed from the site when seedbed preparation operations are completed. Soil, fertilizer, compost and seed shall be removed from paved areas as soon as possible after seedbed tilling, grading, and seeding operations are completed.

It shall be the responsibility of the contractor to ensure that the soil of the seedbed preparation area is not blown or washed from the site and that nearby areas are protected from soil, fertilizer, compost, etc. In the event of heavy rain or wind that causes damage to the site which may have been anticipated and prevented by the contractor, then the contractor shall repair the damaged areas so they are restored to a condition acceptable under the specifications; when soil or other material is moved from the site and deposited on nearby areas the contractor shall restore those areas to a condition substantially similar to that which prevailed before the damaging event. Watering of seeded areas shall be done with equipment necessary to prevent seed from being displaced from its original location.

13.3 Maintenance

All seeded areas shall be maintained for a period of 90 growing days from the date of installation. A growing day is any calendar day between April 15 to November 1. If the maintenance period does not conclude by Nov. 1, the remaining balance on the warranty will carry over to begin on April 15 of the following year.

Maintenance includes watering, weeding, fertilizing and mowing to establish turf and create an adequate root system on the seeded areas. The Engineer will then make the final inspection and consider acceptance of the seed.

Daily watering shall be required throughout the growing period unless otherwise specified by the Engineer. The Owner shall furnish the water free of cost but reserves the right to indicate the source of supply. The Contractor shall acquire one water meter per project from the Owner for use by the Contractor and all sub-contractors at a refundable cost of $1200. The Contractor shall provide all the labor and equipment for the application of water in turf restoration areas for the duration of the maintenance

period. A pay item shall be designated for the application of water. The application of water on a daily basis must be a high priority for the contractor. No relief will be granted to the contractor for the failure of turf to establish for any reason, including the MNDOT summer blackout dates. The contractor must use the application of water to insure the development of the turf. The Contractor must submit weekly water application records to the Engineer. Daily watering will not be required after a 0.5 inch or greater rainfall event or as determined by the Engineer. Should the contractor determine that additional water applications, above the once daily minimum, be critical to the establishment of turf, the Engineer should be informed for approval prior to application.

During the 90 day maintenance period, the contractor will be required to perform weeding and mowing of the newly established turf to insure that an acceptable product is achieved at the end of the 90 day maintenance period. The contractor shall perform an initial mowing of the turf when the grasses reach a height of 6 inches or as directed by the Engineer, and shall be cut to a height of 3 inches during the initial and each subsequent mowing. Prior to the initial mowing, the contractor will be responsible for removing any weeds from the seeded areas that exceed a height of 6 inches by hand pulling the weed in a manner that will prevent damage from the surrounding developing turf grasses. After the initial mowing, the contractor will be required to perform additional mowing anytime that the developing grasses exceed a height of 4 inches or as directed by the Engineer. For the purposes of planning for mowing operations, the contractor should assume that the entire project site will need to be mowed 3 weeks after the initial application of seed and every 1 week thereafter for the duration of the 90 day maintenance period. Payment for mowing on a per each basis will include all equipment, materials and labor necessary to mow all establishing turf grasses within the project area per occurrence. All mowing must be completed using a lightweight push mower or approved alternative as determined by the Engineer. Failure of the contractor to mow the establishing turf grasses as described in this paragraph, within 24 hours of receiving notice from the Engineer, will subject the contractor to a $500 penalty in addition to the time and material cost of a 3rd party contractor to perform mowing operations. Weeding of the establishing turf grasses, prior to the initial mowing, will be considered incidental to the bid price for seeding.

For seeded areas, bare spots which persist after three weeks of favorable growing weather shall be re-cultivated and re-seeded as many times as necessary until acceptable turf is established. Acceptable turf shall contain no erosion washes, no bare spots greater than 0.5 square foot, no bare areas comprising more than 0.5% of any given 1,000 square foot area, and no deformation of turf areas caused by mowing or other Contractor equipment.

13.4 Application Rates

Seed Mixture 25-151: 300 lbs/AC
Fertilizer Type 3 (22-5-10): 450 lbs/AC
Hydraulic Soil Stabilizer Type Fiber Reinforced Matrix (FRM) Flexterra HP-FGM by Profile Products LLC or approved equal as approved by the Engineer: 2,500 lbs/AC (100% Coverage)

13.5 .MNDOT Fall Blackout

MNDOT has stipulated the Fall blackout for the application of seed as September 20th. In order to insure that all project seed is applied by this date, the contractor should prepare a critical path schedule for the project and insure that an intermediate completion date of September 20th is met for the completion of all seeding operations. Should events outside of the control of the contractor, such as extreme weather, third-party conflicts, or changes to the project scope delay the application of seed to a date beyond September 20th, the Engineer must be informed immediately of this situation. If the delay is demonstrated to be unavoidable and not a result of poor project management, the Engineer will consider alternative methods for the application and maintenance of the seed to insure a successful establishment the following spring. This may include reseeding the entire project area or portions thereof and/or slit seeding of all or portions of the project. Repeat application of seed after the lapse of the Fall blackout date due to factors outside the control of the contractor will be paid for as a change order if necessary and unavoidable.

14.0 TREE REMOVAL

The trees encountered shall be cleared and grubbed as directed by the Engineer and disposed of outside of the City of Edina City limits.

Where trees are not marked for removal, the Contractor shall protect these trees in accordance with MnDOT Spec. 2572. The Contractor shall take special care to preserve existing trees and shrubs wherever possible. This may include careful grading operations, slight adjustments of slopes, and placing silt fence at tree drip lines. Protection of trees not identified to be removed shall be incidental. See Article 15.0 “Protection of Trees and Private Landscaping” for summary of fines for not properly using care around trees.

Current and pertinent government regulations concerning disposal of elm trees or other types of trees shall be adhered to.

Cleared trees may be claimed by the abutting property owner, and if so, they shall be trimmed, cut into sixteen inch (16") lengths and piled on private property. All other material shall be disposed of by the contractor.

15.0 PROTECTION OF TREES AND PRIVATE LANDSCAPING

Where trees are not marked for removal, Contractor shall protect these trees in accordance with MnDOT Spec. 2572. Protection of trees not identified to be removed shall be incidental.

15.1 Description

The work described by this special provision shall protect all of the boulevard trees in the project area from damage during reconstruction operations that

would require their subsequent removal. It also protects private landscaping adjacent to the reconstruction work.

The contractor is responsible for all damage to trees and private landscaping resulting from any neglectful act or misconduct in the execution of the work. Reasonable damage will be allowed as required to implement the work. Damage that occurs beyond that allowed will result in monies being deducted from the payment due the contractor. Damage assessments will be performed by the Engineer.

15.2 Construction Requirements

Protection of existing trees and landscaping shall be accomplished using tools such as fencing placed along the construction limits, carefully choosing the style of machinery the specifications allow to travel behind the existing curb and gutter, shoring, construction boxes, and protective ground sheeting. However, it shall not be limited to just these tools. The Contractor can use other tools to protect the trees and landscaping at their discretion and as approved by the Engineer, such as hiring a commercial arborist to advise how to best protect the trees. If this arborist should contest a damage assessment performed by the Engineer, the City will consider the arborists argument, but the Engineer's ultimate decision will prevail.

This work includes proper pruning and trimming of roots and branches of trees or private landscaping as necessary.

a) Branch pruning shall not be done until the limits of pruning are approved by the Engineer and City Forester.

This work includes measures to prevent soil compaction and pollution in the current or future root zone areas. This work includes root and branch cutting using a saw.

15.3 Schedule of Damages

Damage to trees and shrubs shall be measured according to the following table.

SCHEDULE OF DAMAGES (PER TREE OR PRIVATE LANDSCAPING FEATURE)			
TYPE OF DAMAGE	**LEVEL OF DAMAGE**		
	LOW	**MODERATE**	**SEVERE**
Trees			
Above Ground			
Canopy			
Branches			
Less than 2 inch diameter	2 occurrences	Between 3 and 5 occurrences	6 or more occurrences
Greater than 2 inches diameter	1 occurrence	Between 2 and 3 occurrences	3 or more occurrences
Trunk Stem Circumference Damage			

SCHEDULE OF DAMAGES (PER TREE OR PRIVATE LANDSCAPING FEATURE)			
TYPE OF DAMAGE	**LEVEL OF DAMAGE**		
	LOW	**MODERATE**	**SEVERE**
Less than 25% bark loss	1 occurrence		
26-50% bark loss		1 occurrence	
Greater than 51% bark loss			1 occurrence
Below Ground			
Root Zone			
Construction within 4 feet of the face of the trunk			
Material storage	1 occurrence	2 occurrences	3 or more occurrences
Equipment storage	1 occurrence	2 occurrences	3 or more occurrences
Construction Operations	1 occurrence	2 occurrences	3 or more occurrences
Soil Compaction	1 occurrence	2 occurrences	3 or more occurrences
Pollution			1 occurrence
Root Cutting			
1 side of the tree less than 4 feet from the face of the tree		1 occurrence	
2 or more sides of the tree less than 4 feet from the face of the tree			1 occurrence
Private Landscaping			
Shrubs			
Broken branches per shrub		1 branch	2 or more branches
Perennials			
Any damage per perennial			1 occurrence

15.4 Schedule of Deductions

Deductions from the amount due to the Contractor for the tree and private landscaping protection item shall be calculated in accordance with the following table.

Level of Damage	**Damage Fee** [1]
Trees	
Low of all Types	$200 per any 5 low damages
Moderate of all Types	$400 per any 3 moderate damages
Severe of all Types	$800 per any severe damage
Private Landscaping	

Shrubs	
Moderate	$25 per shrub
Severe	$100 per shrub
Perennials	
Severe	$20 per plant

[1] Should the Contractor accrue damages, the engineer will maintain a running account of those damage fees throughout the project. Damage fees will be assessed against the contractor in the last application for payment. The Engineers running damage account is available to the Contractor for review upon request.

All labor, equipment, and materials needed to protect trees and private landscaping and prune and trim trees, shrubs, and roots is incidental to the contract.

16.0 CLEAN ROOT CUTTING

Where trees are not marked for removal, but root systems interfere with the construction of curb and gutter or sump drain, Contractor shall clean cut the roots in accordance with MnDOT Spec 2572.3A.2.

17.0 NATURAL STONE RETAINING WALL

This work shall include all work necessary to install new retaining walls as indicated in the plan used for lateral support of banks and around trees. Soil analysis and wall design shall be completed by the contract and/or wall engineer selected by the Contractor and approved by the Engineer. Prior to construction, the contractor shall supply color samples of the block for approval by the Engineer.

These walls shall be constructed from materials and in like manner to the existing retaining wall located in the City of Edina adjacent to City Hall along West 50th Street and Eden Avenue.

The rock shall conform to Edina Standard Plate 520 and shall have a thickness of four (4”) inches minimum to eight (8”) inches maximum and a minimum bury depth of one (1) foot. The top two (2) courses shall be grouted. All courses shall be level during placement.

Payment shall be on the basis of square feet vertical exposed face area and shall be compensation in full for all costs of construction. This work shall include, but not be limited to, all equipment, labor and materials necessary to complete the work as specified.

18.0 LANDSCAPE ROCK

This work shall include all work necessary to furnish and install the landscape rock. The type and size of landscaping rock shall be of similar size, shape and color of the existing landscaping rock. The work shall include, but not be limited to, all equipment,

labor, fabric barrier between the sub grade soil and the landscape rock, backfilling, landscape edging and other materials necessary to complete the work. The work shall be coordinated with the Engineer and property owners prior to removal and installation.

19.0 MAIL BOXES

The Contractor shall relocate mailboxes as necessary. Mail boxes shall be set four (4) feet up from top of curb to the bottom of box and front of mail box straight up from back of curb. Mailbox relocations (both temporary and permanent) shall be accomplished so there will be no interruption of mail service. This work shall be considered incidental and no direct compensation shall be provided unless a specific bid item is included in the Contract for such work.

20.0 TRAFFIC SIGNS AND DEVICES:

Traffic Signs and Devices shall be constructed in accordance with MnDOT 2564, except as follows:

1.1 Materials

1.1.1 Sign Panels:

Provide in accordance with the latest MnDOT Standard Signs Manual, the Minnesota Traffic Engineering Manual, the MMUTCD, the plans, MnDOT 2564, and as follows.

All Traffic signs will be Type C DG-3 Diamond Grade.

1.1.2 Fabricate in accordance with the following

Sign base material: Sheet aluminum conforming to material requirements of MnDOT 3352.2A1a.

Sign face material: Reflective sheeting conforming to MnDOT 3352.2A.2.a.

Sign legend material: “Direct Applied” conforming to the requirements of MnDOT 3352.2A.5.c or 3352.2A.5.d.

1.1.3 Traffic sign posts:

Provide 3.0 pounds/foot flanged channel Galvanized sign posts conforming to MnDOT 3401.

Provide quantity of Galvanized sign posts at each installation in accordance with the Plans.

Provide sign structural components for mounting sign panels (including posts, knee braces, etc.) in accordance with the applicable provisions of the Plans, the Minnesota Traffic Engineering Manual and with the details enclosed in these Special Provisions/the Plans

Determine length of Galvanized sign posts in accordance with the following sign panel mounting height guidelines provided in these Special Provisions. All Galvanized sign posts must be installed 3 feet below finished grade.

Where Type C Signs are to be installed on street name sign posts, permanent barricades, or on traffic signal poles, mounting hardware required to mount sign panels shall be approved by Engineer prior to installation.

1.1.4 Fabrication Stickers

Screen a fabrication sticker and affix to backside of each new Type C sign panel in lower right-hand corner (when facing the back of the sign.)

Provide full size mock-up (minimum 1-1/2 inches by 3 inches) of sticker to Engineer for written approval prior to producing any stickers for the Project.

Produce fabrication sticker in accordance with the following:

Colors shall be black legend on white reflectorized background.

Month and year of fabrication of the sign panel shall be punched out prior to installation of sticker on sign panel.

Fabrication sticker shall be similar to example shown below, unless otherwise approved by the Engineer.

Sign Company Name

Address

Month 1 2 3 4 5 6 7 8 9 10 11 12

Year 14 15 16 17 18

1.1.5 Street Name Signs:

The Owner will provide street name signs for the Contractor to pick up from Public works. Contractor must coordinate work with Engineer on site and give a minimum of a 72 hour notice before picking up.

Contractor will need to supply the 2 3/8" outside diameter galvanized steel post for all street name signs and all other materials need for installation. This includes but not limited to nuts, bolts, installing steel plate, rivet and all labor.

1.1.5.1 Post:

Provide round galvanized steel pipe as follows:

2-3/8-inch outside diameter

12 gauge minimum diameter

Provide a 3/16-inch thick by 8-inch by 8–inch steel plate, welded to the post to prevent rotation as shown in the Plans.

1.1.5.2 Mounting Hardware:

Provide steel assembly units as follows:

Post cap with 5/16-inch bolts and 3/16" Aluminum rivets and ¼" Stainless Steel rivets to secure.

When only one street name is to be installed the Contractor will need to use a cap for 2" round post from Newman Traffic Sign (Part #809). When there are more than one street sign the Contractor must use a combination of 2" cap, 90 degree or 180 degree cross piece (Part #809) for installation or approved equal.

Bracket assembly shall be Lyle E-450 for post mounted assemblies, Lyle E-450 OLP for street light pole mounted assemblies, or Engineer approved equal. Street light pole assemblies shall be mounted using stainless steel straps.

All remounting hardware shall be galvanized or aluminum.

[End of Grading and Landscaping]